



Horizontal distribution pattern of the syllid fauna (Annelida: Polychaeta) in the fringing reef lagoon of Anse Forbans (Seychelles, Mahé) and redescription of the abundant *Streptosyllis aequiseta*

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Abstract

The species composition and diversity of benthic meiofaunal communities inhabiting the fringing reef lagoon of Anse Forbans were studied during two field collections in the years 1999 and 2000. The Anse Forbans is a sandy beach, on the SE coast of Mahé, which shows a physical and biological zonation parallel to the shore. The meiofauna in the sediments of the zones was dominated by polychaetes, especially the Syllidae. Thirty-three different syllid species belonging to sixteen generic taxa were identified. *Streptosyllis aequiseta* Hartmann-Schröder, 1981, one of the most abundant species and widely distributed within the reef flat, is redescribed.

Introduction

The majority of syllid species are meiofaunal organisms living on hard bottoms, in crevices of stones and corals, or in the interstitial spaces of sediments. Especially in littoral areas of warm seas, they constitute the most numerically abundant and species-rich polychaete family taxon. It was not until the second half of the 20th century, however, that their extreme diversity in littoral sandy areas became obvious and numerous new species were described from this habitat by Gesa Hartmann-Schröder, Hamburg, in particular. Most of these studies are limited to taxonomic descriptions. Only a few qualitative and/or quantitative distributional data on littoral syllid species are available, mostly from littoral hard substrates and algal assemblages (e.g., Kohn & Lloyd, 1973; Ben-Eliahu, 1977a, b; Fresi et al., 1983; Abbiati et al., 1987; Giangrande, 1988; López & Viéitez, 1999), and rarely from interstitial habitats. Exceptions are, for example, the zonation patterns described for a single *Streptosyllis* species in a North Sea sand flat (Schmidt, 1969), and for numerous species in a mangrove swamp of the Caribbean Sea (Russell, 1987). The distribution pattern of syllid species in the sedi-

ments of fringing reefs has never been the subject of an extensive investigation, although zonations of macrofauna and flora have repeatedly been examined in a large number of such reefs around the world – including the Seychelles. Most of the fringing reefs of the Seychellean island Mahé are easily accessible (Lewis, 1968; Taylor, 1968, 1971; Taylor & Lewis, 1970; Braithwaite, 1971; Rosen, 1971; Pillai et al., 1973; Stoddart, 1984; van der Land, 1994 a, b) and, therefore, very suitable for such a purpose. One of the most abundant and distributed syllid species throughout the reef of the Anse Forbans is *Streptosyllis aequiseta* Hartmann-Schröder, 1981. Since its original description and subsequent records by the same author lack certain crucial taxonomic characters, a redescription of live and fixed specimens is given here, together with a taxonomic discussion of the genus.

Study area

The reef in front of the beach Anse Forbans (4° 47' S, 55° 31' E) was chosen for collection because of its accessibility and structural diversity. It is a sand beach, on the SE side of Mahé, fringed by a coral reef flat

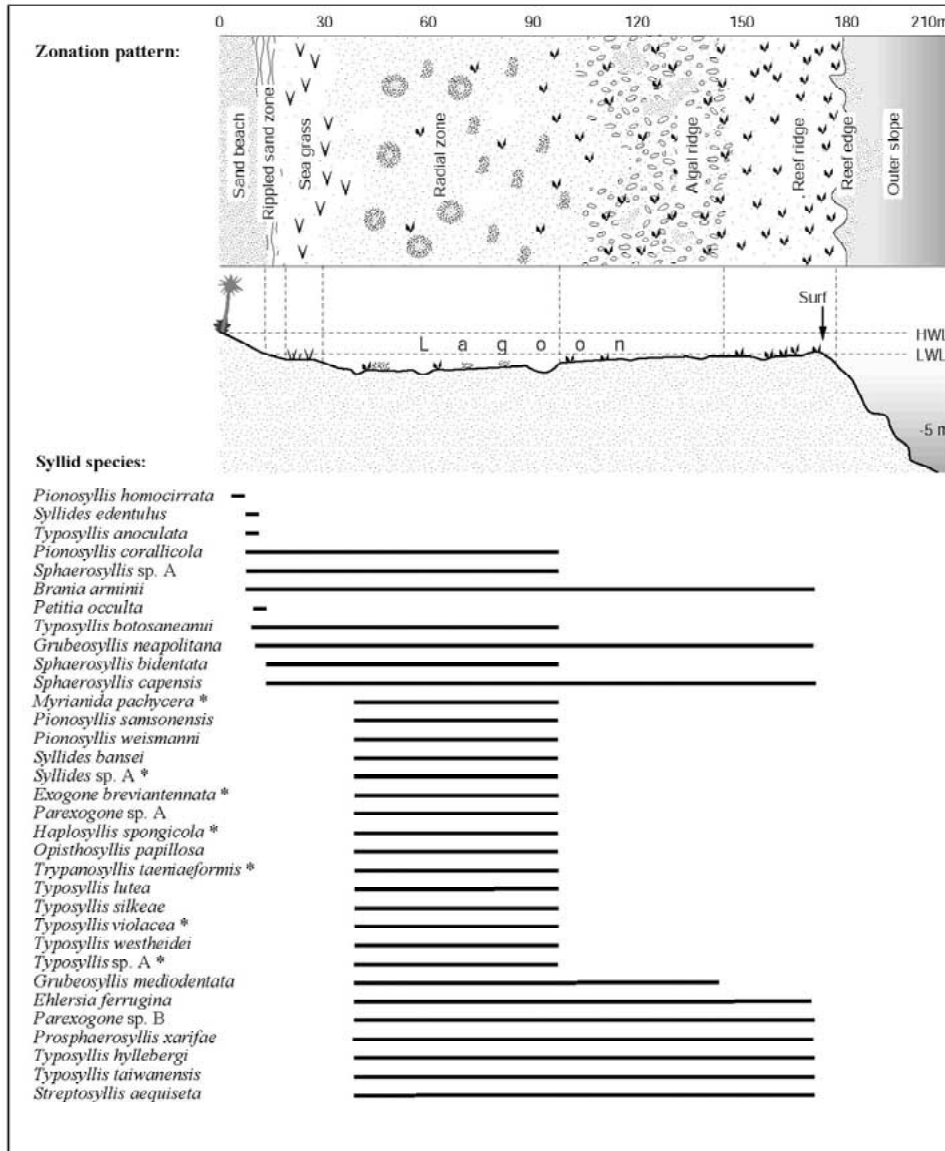


Figure 1. Transect of the fringing reef lagoon of Anse Forbans (Mahé) with zonation patterns of syllid species between sand beach (left side) and reef edge (*: species only sampled by oxygen depletion method).

(Böggemann et al., 2001; Böggemann & Westheide, in press). The sediment is formed mainly of detrital carbonate grains and land-derived quartz (Lewis & Taylor, 1966; Lewis, 1969), the grain sizes of which are well-sorted. The exposed reef edge lies about 180 m seawards and runs almost parallel to the beach. Tides are mixed semidiurnal, with a maximum range of approximately 1.4 m; therefore the reef ridge and some of the corals are exposed at lowest spring tides. The water is usually very clear with low turbidity; underwater visibility about 20 m. The reef lagoon ex-

hibits a physical and biological zonation parallel to the shore (Fig. 1). As is generally the case in these reefs, a number of more or less characteristic groups of organisms including macroalgae, macrofauna and meiofauna are associated with each of these zones (see Morton & Challis, 1969). A similar zonation is reflected in the distribution pattern of the syllid species and other meiofaunal polychaetes (Westheide, 2000a, b, 2001).

Materials and methods

Meiofauna was collected in February/March 1999 and in March/April 2000. Sediment samples from the different zones were taken with plastic corers directly by hand in shallow areas or by snorkeling in deeper water. The animals were extracted from the sand using the $MgCl_2$ decantation method and 70 μm mesh sieves. In addition, animals from the radial zone living in pieces of beach rock and dead corals were forced to leave their hiding places by decreasing oxygen content after they were placed in buckets with sea water for several hours. The specimens were studied alive, subsequently fixed in Bouin's fluid and later transferred to 70% ethanol. For light microscopy, fixed specimens were transferred into alcohol/glycerol. The material was sorted under stereo microscopes. Figures were made with a camera lucida attached to a Leitz Diaplan interference contrast microscope or a Zeiss compound microscope.

Results

The polychaete meiofauna of the fringing reef lagoon of Anse Forbans is dominated by the Syllidae – in abundance as well as in species diversity. Thirty-three different species belonging to 16 generic taxa were identified. Some of the species [e.g., *Brania arminii* (Langerhans, 1881), *Grubeosyllis neapolitana* (Goodrich, 1930) (= *Brania subterranea* (Hartmann-Schröder, 1956)), *Sphaerosyllis capensis* Day, 1953 and *Streptosyllis aequisetata* Hartmann-Schröder, 1981] show a wide distribution within the reef flat, whereas others are restricted to specific zones (Fig. 1). *Petitia occulta* Westheide & Hass-Cordes, 2001, *Pionosyllis homocirrata* (Hartmann-Schröder, 1958), *Syllides edentulus* (Claparède, 1878) and *Typosyllis anoculata* Hartmann-Schröder, 1962 for example exclusively inhabit the intertidal zone of the beach slope and show a characteristic, tide-dependent zonation.

The following zones (Fig. 1; see also Stoddart, 1984) and their fauna are recognized:

Sand beach

Sand beach is 10–15 m wide, eulittoral moderately steep slope with generally low wave action at high tide; in the upper zone solid beach rock in the substratum; colonized in the landward region by salt-resistant plants such as *Calophyllum inophyllum*, *Casu-*

arina equisetifolia, *Cocos nucifera*, the creeper *Ipomoea pescaprae* and the shrub *Scaevola frutescens*. Land crabs abundant in the landward region of the beach, whereas the night-active ghost crab *Ocypode ceratophthalmus* settles near the high-water line. In the landward region of the beach also clutches of turtle eggs, at least in 1999. Sediment consisting of medium sand.

Syllid species:

Pionosyllis homocirrata (Fig. 2E) exclusively inhabits upper parts of the intertidal zone of the beach slope (down to 50 cm or more within sediment). *Syllides edentulus* and *Typosyllis anoculata* are characteristic of more deeply water-saturated areas in the middle part of the slope – partly together with *Brania arminii*, *Pionosyllis corallicola* Ding & Westheide, 1997 and *Sphaerosyllis* sp. A. *Petitia occulta* is abundant (relative close to the surface) in a zone about three meters wide in the lower part of the slope, where also *Grubeosyllis neapolitana* (Fig. 2A) and *Typosyllis botosaneanui* Hartmann-Schröder, 1973 occur.

Accompanying interstitial polychaetes:

Vertical distribution from the upper parts of the beach downwards: *Hesionura* sp. (Phyllodocidae), *Protodrilus* ssp. (Protodrilidae), *Goniadides falcigera* Hartmann-Schröder, 1962 (Goniadidae), *Saccocirrus* sp. (Saccocirridae), *Polygordius* sp. (Polygordiidae), *Hesionides indoceanica* Westheide & Rao, 1977.

Lagoon

A generally flat, shallow sublittoral area with high circulation; dominated by macroalgae, strong coral boulders and variously extensive sediment areas in between. Inhabited by various macrofaunal species including gastropods, cephalopods, decapod and stomatopod crustaceans, sea urchins, holothurians, a wide spectrum of fish species and, rarely, sea turtles. The lagoon can be subdivided into:

(a) Rippled sand zone: 3–4 m wide, consisting of the coarsest sand within the lagoon and being highly mobile.

Syllid species:

Brania arminii, *Sphaerosyllis bidentata* Hartmann-Schröder, 1974, *Sphaerosyllis capensis* (Fig. 2C), *Typosyllis botosaneanui*.

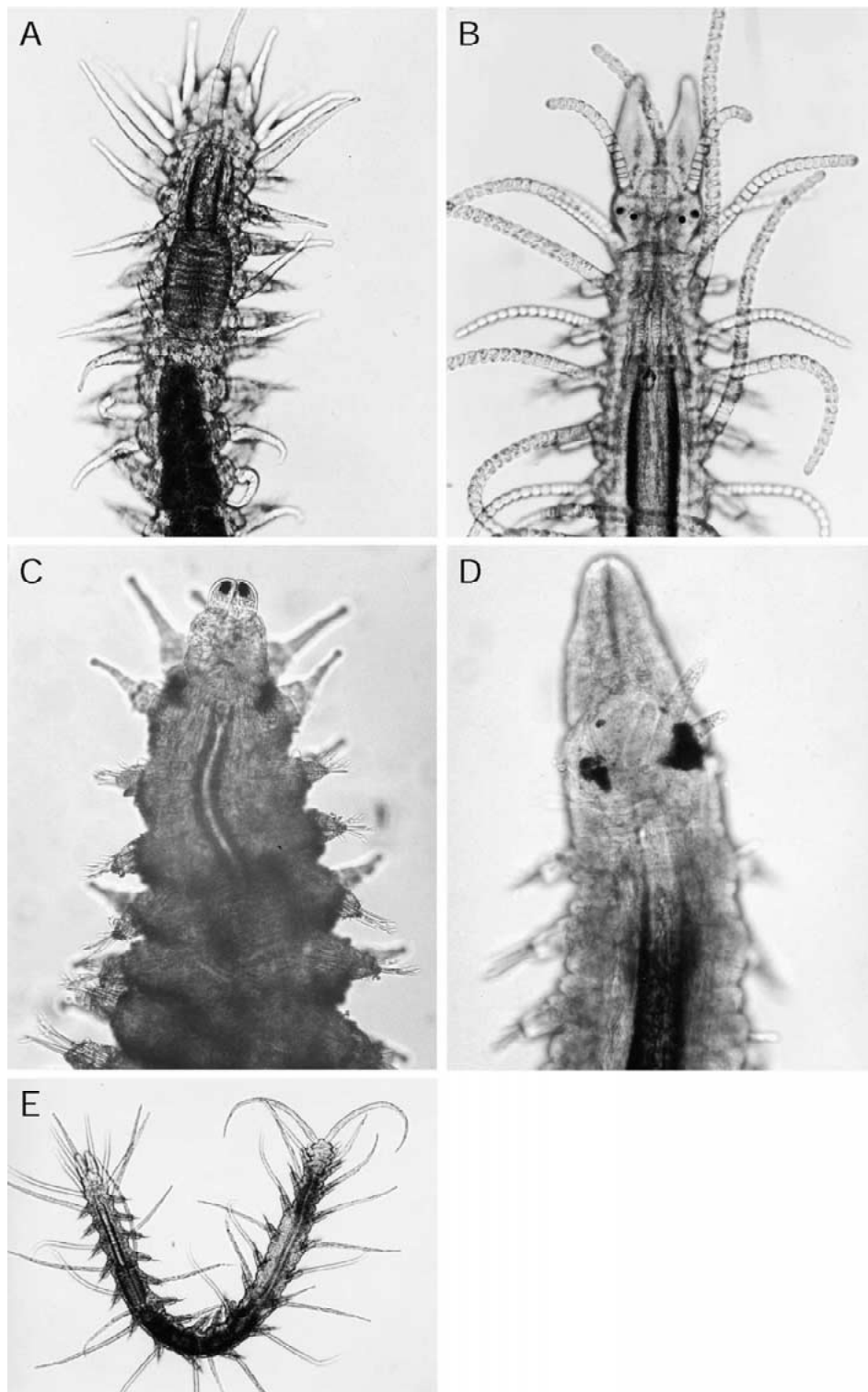


Figure 2. Micrographs of live syllid species from the Anse Forbans site (Mahé). (A) *Grubeosyllis neapolitana*. (B) *Typosyllis lutea*. (C) *Sphaerosyllis capensis*. (D) *Parexogone* sp. A. (E) *Pionosyllis homocirrata*.

Accompanying interstitial polychaetes

Nerilla sp. and *Nerillidium* sp. (Nerillidae).

b) Radial zone: About 70 m wide. Landwards with a small isolated, apparently reduced sward of sea grass, seawards with massive *Porites* boulders (diameter up to 3 m), upper surfaces of which usually flattened, and covered with other corals or brown algae such as species of *Padina*, *Sargassum* and *Turbinaria*. Smaller and larger open sandy areas with finer sediments and coral rubble can be found between these microatolls; the sandy areas are especially rich in meiofaunal animals including numerous syllids (up to 335 specimens in 100 cm³).

Syllid species:

Brania arminii, *Ehlersia ferrugina* Langerhans, 1881, *Grubeosyllis mediodentata* (Westheide, 1974), *Grubeosyllis neapolitana*, *Opisthosyllis papillosa* Hartmann-Schröder, 1960, *Parexogone* sp. A (Fig. 2D), *Parexogone* sp. B, *Pionosyllis corallicola*, *Pionosyllis samsonensis* Hartmann-Schröder, 1980, *Pionosyllis weismanni* Langerhans, 1879 sensu Ben-Eliahu, 1977, *Prosphaerosyllis xarifae* (Hartmann-Schröder, 1960), *Sphaerosyllis bidentata*, *Sphaerosyllis capensis*, *Sphaerosyllis* sp. A, *Streptosyllis aequiseta*, *Syllides bansei* Perkins, 1981, *Typosyllis botosaneanui*, *Typosyllis hyllebergi* Licher, 1999, *Typosyllis lutea* Hartmann-Schröder, 1960 (Fig. 2B), *Typosyllis silkeae* Licher, 1999, *Typosyllis taiwanensis* Licher, 1999, *Typosyllis westheidei* (San Martín, 1984). Additional syllid species were caused to emerge from beach rock pieces and dead coral fragments by the oxygen depletion method: *Exogone breviantennata* Hartmann-Schröder, 1959, *Haplosyllis spongicola* (Grube, 1855), *Myrianida pachycera* (Augener, 1913), *Syllides* sp. A, *Trypanosyllis taeniaeformis* (Haswell, 1886), *Typosyllis violacea* (Grube, 1870), *Typosyllis* sp. A.

Accompanying interstitial polychaetes:

Laubierpholoe indoceanica Westheide, 2001 (Pholoidae), *Mahesia ammophila* Westheide, 2000 (Hesionidae), *Microphthalmus* sp. n. (Hesionidae), *Pisione parva* DeWilde & Govaere, 1995 (Pisionidae), *Polygordius* sp. (Polygordiidae), *Raricirrus* sp. (Cirratulidae) and several Amphinomidae, Chrysopetalidae, Dorvilleidae, Eunicidae, Nereididae, Phyllodoceidae and Terebellidae.

(c) Algal ridge: 40 m wide, zone made up of small sandy areas, calcareous algae and incrustated hard substrates. Characteristic of this zone, which

becomes progressively shallower seawards, was the brown algae *Sargassum* sp.

The sandy areas of the algal ridge contain a lower number of species than the radial zone, and the abundance is lower, e.g., *Grubeosyllis mediodentata*, *Streptosyllis aequiseta*.

Reef ridge

Reef ridge is 30 m wide, zone formed by incrustated coral debris, cemented to the ridge by algal growth, and with small, spot-like, sand patches. Covered by short brown algae such as *Padina* sp. and *Turbinaria decurrens*. Living stony corals are rare, because the habitat is influenced by tidal currents, storm-generated wave action, and sediment resuspension. Reef edge marks the seaward extremity of the reef flat and extends from the ridge to the reef front (Taylor, 1968).

Syllid species:

Brania arminii, *Ehlersia ferrugina*, *Grubeosyllis neapolitana*, *Parexogone* sp. B, *Prosphaerosyllis xarifae*, *Sphaerosyllis capensis*, *Streptosyllis aequiseta*, *Typosyllis hyllebergi*, *Typosyllis taiwanensis*.

Systematics

Redescription of *Streptosyllis aequiseta* Hartmann-Schröder, 1981 (Figs 3 and 4)

Streptosyllis aequiseta Hartmann-Schröder, 1981: 32–33, Figures 53–58

Material examined: Anse Forbans, radial zone in front of microatolls, 17.II.1999, 11 specimens (Senckenberg Museum, Frankfurt, SMF 10361). Radial zone between microatolls, 13.III.2000, 10 specimens (SMF 10362). Algal ridge, 16.II.1999, 9 specimens (SMF 10363). Reef edge, 22.III.2000, 8 specimens (SMF 10364). Several whole mounts in collection of senior author.

Material compared: Tasmania, Parson Cove, 24.I.1986 (Zoologisches Institut und Zoologisches Museum der Universität Hamburg, HZM P-20033). Australia, Dunsborough, 9.XI.1975 (HZM P-16523).

Description: Almost transparent with extremely fragile appendages. Length of mature animals up to 4.9 mm with up to 41 chaetigers; width in mid-body region ca. 250 μ m without parapodia, ca. 500 μ m with parapodia, narrowing anteriorly and posteriorly, thus

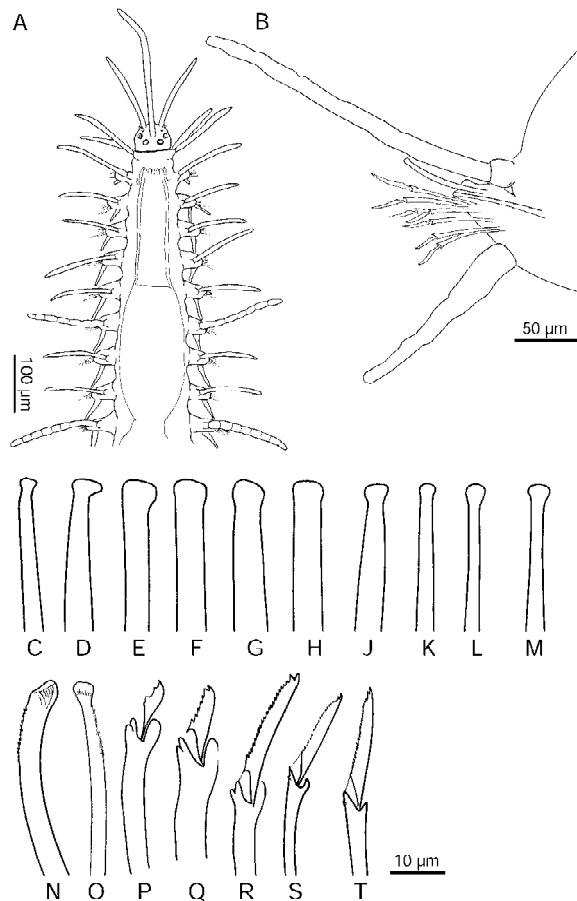


Figure 3. *Streptosyllis aequiseta* Hartmann-Schröder, 1981. (A) Anterior end. (B) Parapodium, chaetiger 22. (C–M) Series of aciculae in one specimen, arranged from chaetiger 1 (C), 2 (D), 3 (E), 4 (F), 6 (G), 7 (H), 8 (J), 11 (K), 15 (L) to 20 (M). (N) Supraacicular simple chaeta, chaetiger 7. (O) Supraacicular simple chaeta, chaetiger 19. (P) Compound falciger, chaetiger 2. (Q) Compound falciger, chaetiger 7. (R) Superiormost compound falciger, chaetiger 7. (S) Inferiormost compound falciger, chaetiger 22. (T) Superiormost compound falciger, chaetiger 22. 10 μm -scale for C–T.

appearing slightly plump. Several of larger specimens with sperm or completely packed with vitellogenic oocytes.

Prostomium more or less rounded anteriorly (Figs 3A and 4D, E). Three pairs of red-lensed eyes; anterior pair small, near lateral antennae; two posterior pairs in trapezoidal arrangement on posterior half of prostomium, largest distance between median eyes (Fig. 4D). In mature animals, posterior four eyes considerably larger than anterior ones. Three slender and almost smooth antennae, with very short bases; median one, inserted between posterior pairs of eyes, longer (ca. 420 μm) than lateral ones (ca. 250 μm),

which are frontally positioned (Fig. 3A). Palps ventral, completely fused with prostomium, not visible from above with exception of two small papilliform palpostyles (ca. 15 μm long, Figs 3A and 4E). Two oblique, anteriorly running, ciliary ridges on both sides of the median antenna; lateral ciliary bundles on each side of prostomium at level of lateral antennae; ciliary fields (possibly nuchal organs) in relatively deep furrow between prostomium and peristomium.

Peristomium with two pairs of tentacular cirri, almost smooth, slightly club-shaped, with short cirrophores; dorsal ones (ca. 220 μm) slightly longer than ventral ones (ca. 165 μm), without chaetae (Figs 3A and 4A).

Foregut situated from anterior part of chaetiger 1 to chaetiger 8 or 9 (length ca. 700 μm). Pharyngeal tube extending over about 3–5 segments; unarmed, anterior margin smooth, with broad lumen (Fig. 3A); 10 regular, cone-shaped terminal papillae, distally with stiff sensory cilia; on their luminal side each with 3 small globular structures in the light microscopical picture (Fig. 4D), although they could not be detected in SEM investigations. Long and broad (150 μm) barrel-shaped proventricle with 46–50 muscle rings; extending over 4–6 segments (Fig. 4F).

Parapodia uniramous (Fig. 3B), more or less homonomous, except for dorsal cirri and chaetation. Dorsal cirri smooth or conspicuously articulated (Fig. 4H), characteristically arranged (Figs 4A–C); chaetigers 1–5 with smooth cirri, chaetiger 6 with articulated, chaetiger 7 and 8 with smooth cirri, thereafter alternately articulated; in posterior region some articulated cirri may occur one after another (Fig. 4C). Smooth cirri resembling antennae, with short cirrophores, slightly wider in middle, distally narrowing; length ca. 180–250 μm , longer than body width in anterior and posterior segments, approximately as wide as body trunk in mid-body region. Articulated cirri longer (ca. 300–400 μm); mostly irregularly coiled and wrinkled, in fixed specimens often broken and lost. With up to ca. 12 almost rectangular articles each; most articles distinctly separated with exception of proximal ones, each article with two long, parallel glands possessing lateral openings at distal end (Fig. 4G, H). Ventral cirri digitiform (length 120 μm), gradually narrowing, extending past parapodial lobes (Fig. 3B), posteriorly directed; ventral cirri of chaetiger 1 shorter and distally less narrow.

Prominent neuropodial lobes. Each with one (rarely 2) distally pistil-shaped acicula; solitary supraacicular simple chaeta, curved, distally hooded,

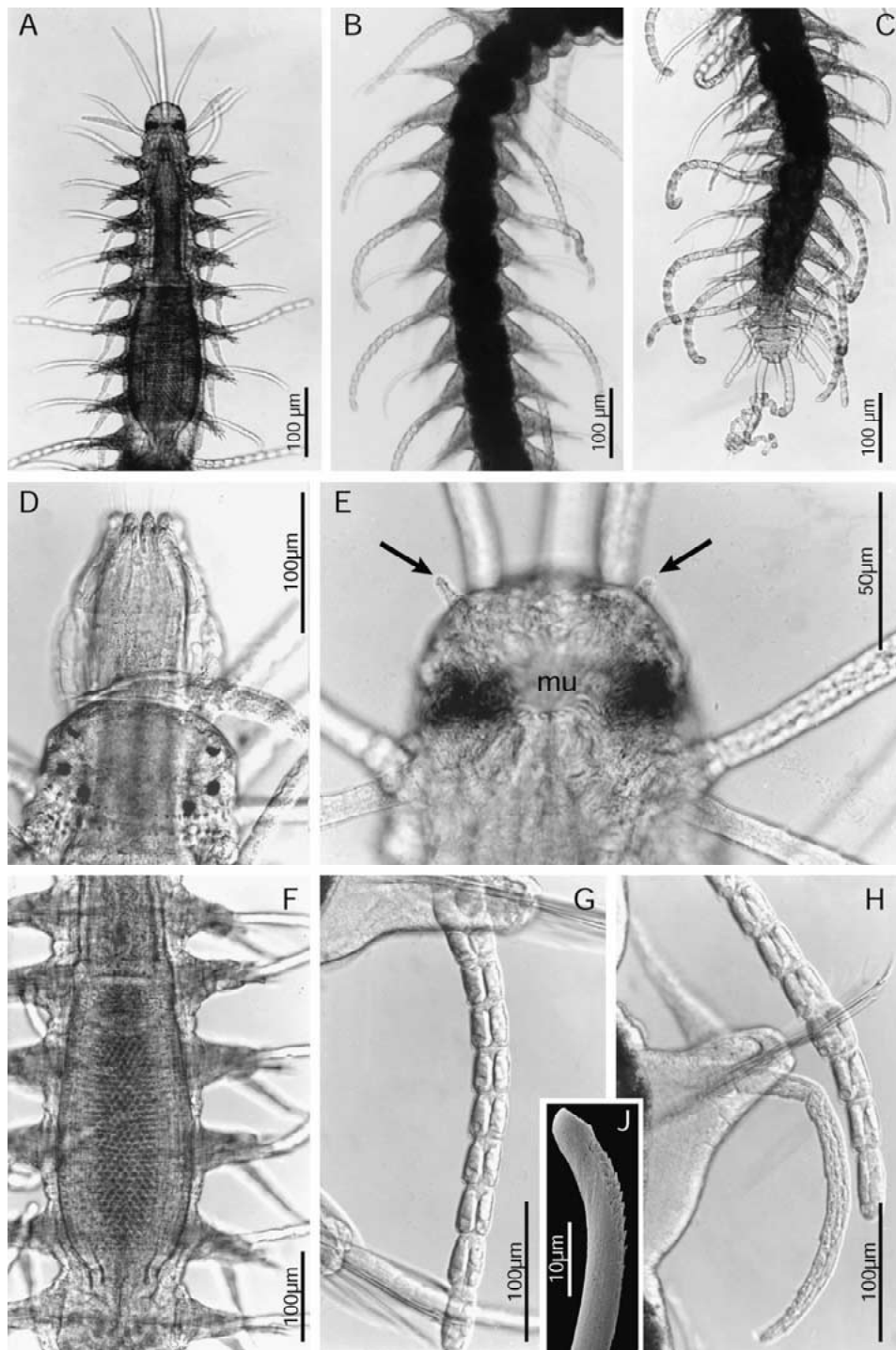


Figure 4. *Streptosyllis aequiseta* Hartmann-Schröder, 1981. (A–H) Micrographs of live animals from Mahé. (A) Anterior region. (B) Middle region. (C) Posterior region. (D) Prostomium with everted anterior end of pharynx, dorsal view. (E) Prostomium – peristomium, ventral view. Arrows point to papilliform palpostyles. mu: mouth opening. (F) Proventricle. (G) Articulated dorsal cirrus from the middle part of body; articles each with two glands. (H) Articulated and smooth cirri from middle part of body. (J) Distal end of solitary supraacicular simple chaeta, SEM-micrograph.

with a series of subdistal fine scale-like serrations (Fig. 4J); and subacicular bundle of compound falcigers (Fig. 3B). Characteristic differences in size of chaetae along body: (1) Aciculae in chaetigers 2–7 about two times thicker than in other chaetigers (Fig. 3C–M), size of aciculae in chaetiger 8 approximately intermediate between large and normal ones (Fig. 3J). (2) Supraacicular simple chaetae in chaetigers 2–7 (10) distinctly thicker than in the following chaetigers (Fig. 3N, O). (3) Simple supraacicular chaetae gradually decreasing in size in posterior segments, in posteriormost chaetigers distinctly thinner (Fig. 3O). (4) Compounds in chaetigers 1–7 with blades of different length and shape: 6–11 falcigers with short blades, bidentate, distinctly serrated on cutting edges and with strong bifid shafts; shortest and strongest chaetae of this kind in anteriormost segments, in middle of each bundle (Fig. 3P, Q); 1–3 superior falcigers with distinctly longer blades (Fig. 3R). In chaetiger 9 gradual transitions between shorter and longer blades. From chaetiger 9 or 10 backwards compounds with long, only slightly different blades, indistinctly serrated (Fig. 3S, T). In posteriormost and still incomplete chaetal bundles a very fine subacicular capillary chaeta may occur. Last few segments may be achaetous.

Pygidium rectangular to sub-triangular (Fig. 4C), with three anal cirri: one pair of long lateral ones, pseudoarticulated, partly coiled and wrinkled (longer than 300 μm); one short (ca. 80 μm) digitiform mid-ventral cirrus.

Distribution: Australia, Tasmania, Seychelles.

Remarks: The taxonomic subdivision of the Eusyllinae into genera is unsatisfactory. This applies especially to the complex of very similar genera that comprises *Streptosyllis* Webster & Benedict, 1884, *Astreptosyllis* Kudenov & Dorsey, 1982, *Streptospinigera* Kudenov, 1983, and *Syllides* Örsted, 1845. Although Kudenov & Dorsey (1982: 575) announced a forthcoming revision, it has not yet appeared. For none of these taxa are there clear autapomorphies. *Syllides* has predominantly plesiomorphic character states. Characters that are clearly derived are distributed among the three other genera, but not in a congruent manner: (1) enlarged aciculae are present in anterior segments of *Streptosyllis* and *Streptospinigera*, (2) there are two types of blades in the compound chaetae in *Streptosyllis*, *Streptospinigera* and *Astreptosyllis*, and (3) hooded simple chaetae in *Streptosyllis* and *Astreptosyllis*. On the assumption that the stem species of all three taxa already had the two types of blades and hooded simple chaetae, and the stem

species of *Streptosyllis* and *Streptospinigera* acquired the enlarged aciculae, then the latter two taxa constitute the sister taxon of *Astreptosyllis*. It could be that loss of the hooded chaetal structures is an autapomorphy of *Streptospinigera*, but in that case *Streptosyllis* and *Astreptosyllis* cannot be characterized by an autapomorphy. In this context, the establishment of *Streptospinigera* appears unfortunate; the monotypic taxon should be transferred into *Streptosyllis*. The latter taxon would then unambiguously be characterized by the enlarged aciculae in the anterior segments, which would then be considered homologous, as was already done by Southern (1914) in his emendation of the generic definition.

According to Hartmann-Schröder (1960), *Streptosyllis cryptopalpa* and *S. reducta* have an armed pharynx, a feature that required re-examination, since all the other associated species have been described as unarmed. Another character complex that does indeed divide the taxon into two groups is the differentiation of the palps. These are either (1) relatively well developed and distinctly visible in dorsal view (e.g., in *S. latipalpa* Banse, 1968; *S. magnopalpa* Hartmann-Schröder, 1981; *S. templadoi* San Martín, 1984; *S. biarticulata* Hartmann-Schröder, 1991; *S. baolingi* Ding & Westheide, 1994; *S. hainanensis* Ding & Westheide, 1994) or (2) they are more or less completely fused with the prostomium and then said not to be visible from above (except for tiny papilla-like palpostyles) (see Fig. 4E), a situation which the present species shares, e.g., with *S. bidentata* Southern, 1914; *S. websteri* Southern, 1914; *S. aequiseta* Hartmann-Schröder, 1981; *S. pettiboneae* Perkins, 1981 and *S. campoyi* Brito, Núñez & San Martín, 2000.

Within this latter group, especially characters of chaetation and shape and arrangement of dorsal cirri (as far as the latter are adequately described) allow a further discrimination. A species-specific character is probably the position of the enlarged aciculae, which in the Seychellean species corresponds quite closely to the position in *S. aequiseta* Hartmann-Schröder, 1981 of Australia – although less so with reference to the description of the holotype (from Exmouth) (Hartmann-Schröder, 1981) and the animals found at Dunsborough (Hartmann-Schröder, 1983) than to the description of those in Tasmania (Hartmann-Schröder, 1989), which likewise have thicker aciculae in the chaetigers 2–7 (or 8). According to Hartmann-Schröder's (1981) description, this species would be clearly distinguished from the Seychellean one by absence of the anterior pair of eyes in the prostomium and the lack of

articulated dorsal cirri. However, subsequent studies of Hartmann-Schröder's material from Tasmania (Parson Cove, leg. Riser, 24.I.1986) reveal that an anterior pair of eyes is present. The specimens did indeed lack articulated cirri, but most probably because these had been broken off from the associated chaetigers (6, 9, 11, 13 ...). Shape and arrangement of the chaetae do not match completely, but are very similar. Therefore we are identifying our material as *S. aequiseta* on the above-mentioned assumption, but think that this should be confirmed by examination of living animals from the locus typicus whenever possible.

Streptosyllis pettiboneae Perkins, 1981 appears to be very similar to *S. aequiseta* and the Seychellean specimens in habitus, size, arrangement and shape of body appendages as well as general pattern of chaetation. It differs in the occurrence of the short falcigers (only in the first 5 chaetigers) and enlarged aciculae (in chaetigers 2–5) (Perkins, 1981).

Discussion

The polychaetes of the Seychelles are not well-known, so it is not surprising that most of the syllids are new records and a few are new to science; the latter will be described in a separate paper (Böggemann & Westheide, in press). There is a considerable number of widespread, circumtropical and also cosmopolitan species (*Brania arminii*, *Grubeosyllis neapolitana*, *Ehlersia ferrugina*, *Exogone breviantennata*, *Haplosyllis spongicola*, *Opisthosyllis papillosa*, *Pionosyllis homocirrata*, *Trypanosyllis taeniaeformis*, *Typosyllis lutea*). Some of these are found in nearly all the great marine faunal regions: several species are characteristic of the Atlantic and/or Mediterranean (*Prosphaerosyllis xarifae*, *Sphaerosyllis bidentata*, *Syllides bansei*, *Syllides edentulus*, *Typosyllis botosaneanui*, *Typosyllis westheidei*), the Indian Ocean and/or Red Sea (*Pionosyllis samsonensis*, *Pionosyllis weismanni*, *Prosphaerosyllis xarifae*, *Sphaerosyllis bidentata*, *Sphaerosyllis capensis*, *Typosyllis botosaneanui*, *Typosyllis hyllebergi*, *Typosyllis violacea*) and the Pacific fauna (*Grubeosyllis mediudentata*, *Myrianida pachycera*, *Pionosyllis corallicola*, *Syllides edentulus*, *Typosyllis anoculata*, *Typosyllis silkeae*, *Typosyllis taiwanensis*, *Typosyllis westheidei*).

It should be pointed out explicitly that these identifications are based only on traditional evaluation: that is, comparison of exclusively phenotypic characters.

Recent genetic investigations have shown that many of these widely distributed meiofaunal polychaetes are complexes that include cryptic species (Schmidt & Westheide, 1999, 2000). On oceanic islands, in particular, the probability of gene flow between widely separated populations is low, so that speciation is all the more likely. The fact that different species can exist even though they are not distinguishable by visible phenotypic characters has been established in the case of *Petitita occulta* Westheide & Hass-Cordes, 2001, an inhabitant of Mahé, by means of RAPD-PCR fingerprinting and ITS2 sequence comparison (Westheide & Hass-Cordes, 2001; Westheide & Schmidt, 2003). Therefore, we do not rule out the possibility that when similar genetic methods are applied, some of the widely distributed syllid species cited here might prove to comprise other, cryptic species.

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